



## Altec Lansing Electronic Products for the Professional.

Early in this century, the technologies of the telegraph and phonograph combined to create an entirely new discipline—electronically amplified sound. The first major commercial application of this novel science turned silent films into “talkies.” And, when those first movies “talked” over 50 years ago, the company that would become Altec Lansing provided the loudspeaker systems.

In 1936, the All Technical Products company—Altec for short—was incorporated from a former Western Electric division to service the burgeoning motion picture sound industry. Building on this early theatre sound experience, Altec developed the legendary *Voice of the Theatre* loudspeaker line—still the world standard for quality film audio.

Likewise, it was the demands of motion picture sound that led Altec to make the logical step from loudspeakers to designing and manufacturing the amplifiers to power them.

In 1941, Altec developed the first high power amplifier for film theater audio. By 1953, the company had progressed to the point of supplying the first stereophonic theatre sound systems—the aural accompaniment to Cinerama. This same year, Altec loudspeaker systems became the only speakers to be approved by the Academy of Motion Picture Arts and Sciences as the international standard for film sound. Later accomplishments included development of the first quadraphonic theatre sound system and “Acousta-Voicing,” a patented process for the electronic equalization of room acoustics.

In the 1980's, Altec Lansing continues to stand for the highest quality loudspeaker systems for home and professional use. But today the Altec name has also come to mean the finest in electronic devices for the production, control and modification of sound in industrial and professional applications.

The equipment listed in the Altec Lansing Black Rack Book represents the culmination of Altec's long-standing tradition of superior audio engineering. Engineering that supplies the acoustic and electronic components for such prestigious and demanding facilities as the Houston Astrodome, the Moscow Trade Center, Disneyworld, the Sydney Opera House, the XIV Winter Olympic Games and other major sites worldwide.

Altec Lansing's latest generation of power amplifiers, mixer/preamplifiers, equalizers and related electronics are precision-matched for optimum sound power and control. So no matter what combination of components is required, Altec's Black Line units work together to increase the efficiency, reliability and overall performance of your sound system.

Altec Lansing—the choice of sound professionals for over 50 years.

For more information, or the name of your local Authorized Altec Lansing Contractor, contact Altec Lansing, P.O. Box 3113, Anaheim, CA 92803; 714-632-7117.

## 1689, 1692 and 1699 Mixer/Preamplifiers



The new 1689, 1692 and 1699 Mixer/Preamplifiers from Altec Lansing are engineered to handle the complete spectrum of commercial, professional and entertainment applications.

The two-input 1689 Mixer Preamplifier includes individual channel options of microphone phantom power, gain reduction, 200 Hz high pass and selectable balanced/line inputs. The 1689 requires only 1 $\frac{3}{4}$ " of vertical rack space.

The 6-in, 2-out 1692 Mixer/Preamplifier mixes up to six independent signals, delivering +18 dBm output power to associated power amplifiers. Each input channel includes volume, gain, high pass and phantom power controls.

The 1699 Mixer/Preamplifier functions as a 6-input mixer or mixer extender. Controls for each input channel include volume, gain, high pass and phantom power. Output channels offer volume, low-pass and grounding controls.

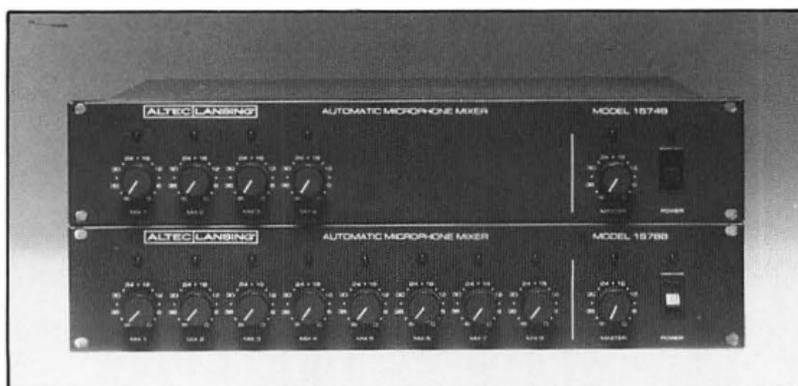
All the new Altec Mixer/Preamplifiers include an exclusive "linking" feature for the interconnection of units in slave or master configuration.

### MIXER/PREAMPLIFIERS

#### Specifications

Model	1689	1692/1699
Input Channels	2	6
Power Output	+18 dBm/600 ohm	+18 dBm/600 ohm
Frequency Response	$\pm 1$ dB from 20-20,000 Hz	$\pm 1$ dB from 20-20,000 Hz
Total Harmonic Distortion	Less than 0.25%	Less than 0.20%
Dimensions	1 $\frac{3}{4}$ "H x 19"W x 8"D (4.45 cm H x 48.26cm W x 20.32cm D)	5 $\frac{1}{4}$ "H x 19"W x 8"D (13.34cm H x 48.26cm W x 20.32cm D)
Weight	7.5 lbs (3.41 kg)	Model 1692, 13 lbs (5.91 kg) Model 1699, 12 lbs (5.45 kg)

## 1674, 1678 Automatic Microphone Mixers



Altec Lansing's 4-channel 1674 and 8-channel 1678 Automatic Microphone Mixers can combine multiple microphone operations automatically for balanced, easy to understand sound and significantly less feedback.

The 1674 and 1678 actually "mix" individual microphone levels automatically, much as a trained operator would. The 1674 and 1678 raise the level of in-use microphones, sharing the gain between them, and lower the level of microphones not in use. The result is hands-off mixing and a constant system gain with less possibility of acoustic feedback.

The 1674 and 1678 also include *Mic Priority* and *All Mute* capabilities, individual line-level outputs for each microphone input, and logic-level outputs for each microphone input to allow automatic priority or other switching systems to be implemented.

Up to 40 microphones may be accommodated by linking individual mixers.

**Write for Technical Letter Number 244, "Applications for the 1674/1678 Automatic Microphone Mixer?"**

### MODELS 1674 AND 1678 AUTOMATIC MICROPHONE MIXERS Specifications (for detailed specifications see AL-2288)

#### Gain

Chan In to Line Out 64 dB or 50 dB  
Chan In to Main Out 94 dB or 80 dB

#### Frequency Response

±1 dB from 20 Hz to 20 kHz

#### Total Harmonic Distortion

Less than 0.20% from 20 Hz to  
20 kHz at +14 dBm  
(3.88V into a 600 ohm load)

#### Hum and Noise

-12 dBm EIN (150  
ohm-termination)

#### Channel Level Indicators

4/8 X LEDs indicate VAC and logic  
output status

#### Line Voltage

100, 120, 200, 220, 240 VAC  
selectable nominal voltages  
±15%, 50 or 60 Hz

#### Power Consumption

25 watts maximum

#### Controls and Switches

4 or 8 Channel volume  
1 Master volume  
1 Auto/Manual  
1 Master/extension  
1 Ground lift  
4 or 8 Preamp gain  
4 or 8 Phantom power  
4 or 8 Hi-pass filter  
4 or 8 Auto/direct  
1 or 2 Mic/line

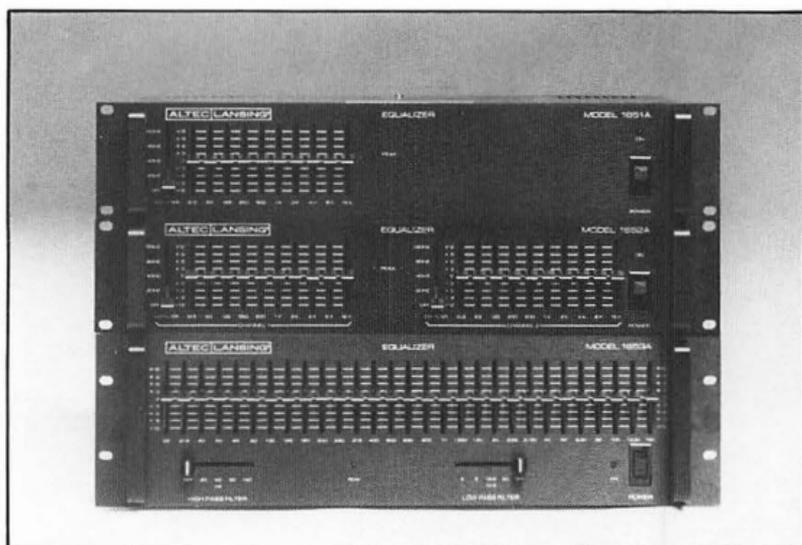
#### Dimensions

Height 3½ in. 8.9 cm  
Width 19 in. 48.3 cm  
Depth 12½ in. 33.7 cm

#### Weight

Model 1674, 16 lb 7.3 kg  
Model 1678, 18 lb 8.2 kg

## 1651, 1652, 1653 Active Graphic Filter Sets



Altec Lansing's new family of active graphic filter sets includes single and dual channel one-octave equalizers—the 1651 and 1652—and a  $\frac{1}{3}$ -octave unit—the 1653. New circuit arrangements and Altec engineering advances make these new equalizers the equipment-of-choice for a wide range of professional and commercial applications.

All filter sections in Altec's new equalizers are combining boost and cut filters. Boosting the center-detented slide control inserts the filter into the main signal path of the amplifier being used. Depressing the slider inserts the filter into the feedback circuit of the equalizer. Utilizing the same filter for both boost and cut allows for precision frequency control accompanied by a minimum of noise and distortion.

While designed to function as boost/cut systems, the 1651, 1652 and 1653 may also be used as cut only (band reject) filter sets. Also built-in: 18-dB/octave continuously variable high pass filters, with excellent control resolution.

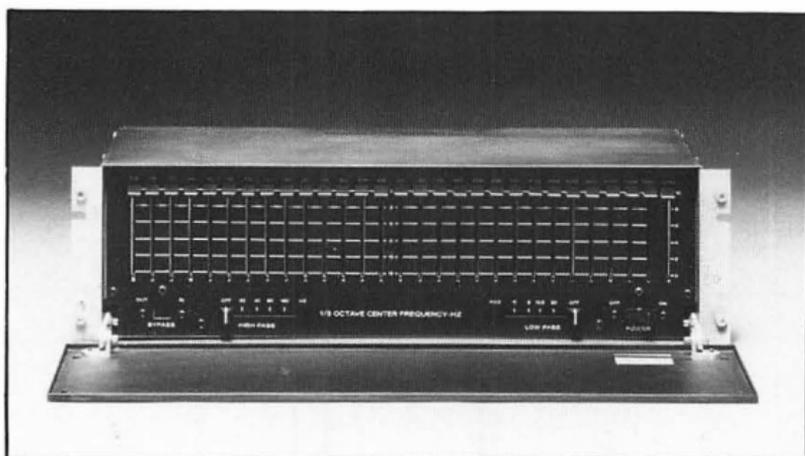
All of the new Altec equalizers feature parallel summed filters, so failure of one filter section won't affect the operation of other sections.

Additional functions include EQ bypass, peak indication and output muting. A bypass relay provides

### ACTIVE GRAPHIC FILTER SETS Specifications

Model	1651	1652
Type	Single channel with 10 active minimum phase shift band-rejection filters at 1-octave intervals	Dual channel with 10 active minimum phase shift band-rejection filters per channel at 1-octave intervals
Frequency Response	$\pm 0.25$ dB (20 Hz-20 kHz)	$\pm 0.25$ dB (20 Hz-20 kHz)
Power Output	+18 dBm (6.16V)	+18 dBm (6.16V)
THD	Less than 0.05%	Less than 0.05%
S/N Ratio	Better than 95 dB	Better than 95 dB
Dimensions	3½" H x 19"W x 8"D (8.3cm H x 48.26cm W x 20.32cm D)	3½" H x 19"W x 8"D (8.3cm H x 48.26cm W x 20.32cm D)

## 1650 Active Equalizer



complete equalization bypass when the AC power switch is off, or when power to the unit is lost. The peak indicator on the front panel illuminates when the output level reaches +16 dB. Turn on/off transients are suppressed through output muting.

The ALTEC 1650 Active Equalizer contains 28 active band-rejection filters at ISO preferred  $\frac{1}{3}$ -octave center frequencies from 31.5 to 16,000 Hz. Each filter section provides up to 15 dB attenuation at its center frequency and is skirted to cross over with adjacent sections at -7 dB, combining to give ripple-free summation over 85% of the range. A gain control restores equalization losses.

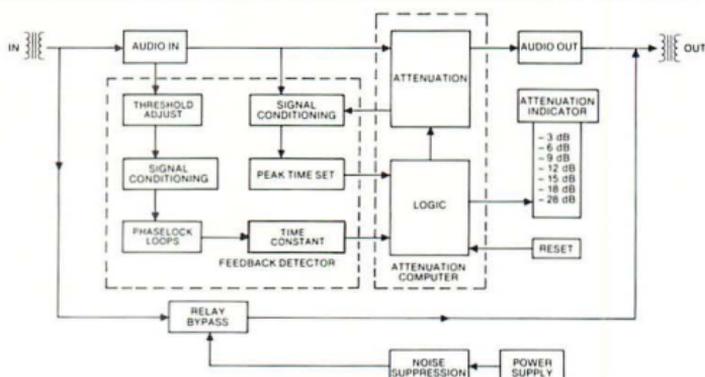
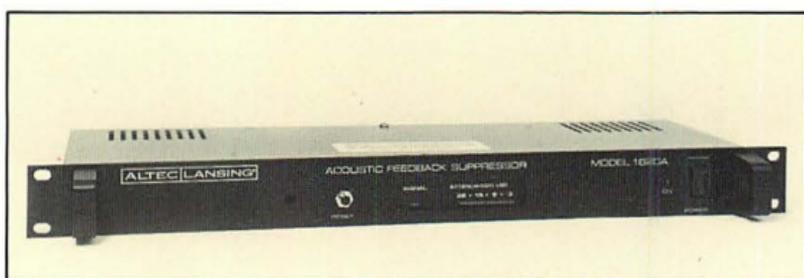
High- and low-pass filters roll off at 18 dB/octave with continuously variable 3 dB down points. A slide-type bypass switch allows the filter set to be conveniently switched in and out of the circuit.

Features include balanced operation with 150-ohm or 600-ohm load impedances and dual-level gain, offering compatible use in high-level, up to +21 dB (8.70 volts), or low-level, up to +1 dB (870 mV), systems. The 1650 has input impedances of 600 or 15,000 ohms unbalanced (direct), or 150, 600 or 15,000 ohms balanced (with accessory transformers).

**Write for Technical Letter Number 232A, "One-third Octave Equalization Techniques and Recommended Practices," and Applications Note Number 6, "Boost vs. Cut."**

1653	1650
$\frac{1}{3}$ -octave with 29 active minimum phase shift band-rejection filters at $\frac{1}{3}$ -octave intervals	Single channel with 28 active minimum phase shift band-rejection filters at $\frac{1}{3}$ -octave intervals
$\pm 0.25$ dB (20 Hz-20 kHz)	$\pm 1$ dB (20 Hz-20 kHz)
+18 dBm (6.16V)	+21 dBm (8.7V)
Less than 0.05%	Less than 0.05%
Better than 95 dB	Better than 90 dB
5 $\frac{1}{4}$ "H x 19"W x 8"D (13.34cm H x 48.26cm W x 20.32cm D)	5 $\frac{1}{4}$ "H x 19"W x 8"D (13.34cm H x 48.26cm W x 20.32cm D)

# 1620 Acoustic Feedback Suppressor



Altec Lansing's new 1620 Acoustic Feedback Suppressor is the first device of its kind capable of automatically detecting and correcting oscillating signal feedback. When it senses the onset of feedback oscillation, the 1620 automatically reduces the volume of the sound system, until the oscillation stops. The 1620 then continues to operate the system at the optimum feedback-controlled level.

The result is hands-off feedback control, even in *unattended* and *multiple microphone systems*.

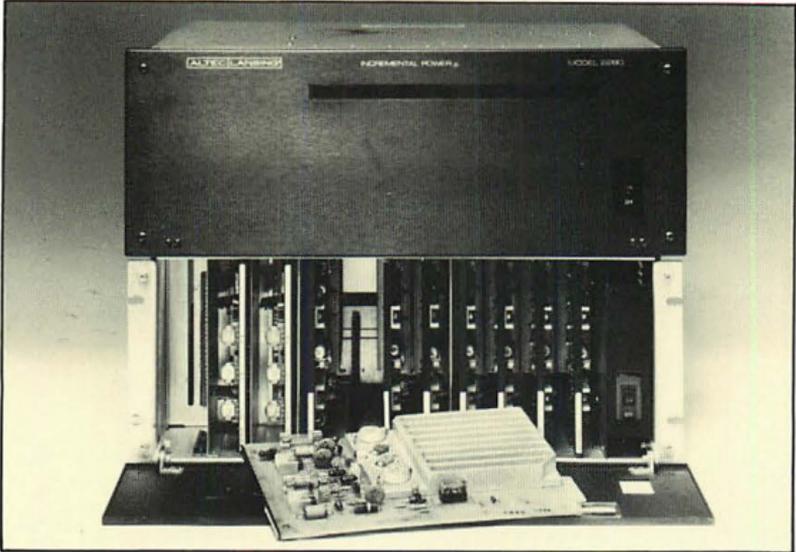
Applications include any system where microphone/loudspeaker interaction can occur to cause feedback, particularly unattended sound systems in meeting rooms, hotels, boardrooms, churches, auditoriums, courtrooms, etc.

Standard features on the 1620 include L.E.D. attenuator displays (at 3, 6, 9, 12, 15, 18 and 28 dB), clipping indicator light, direct hardwire/by-pass switch, remote-capable reset switch, and set-up level indicator light. The 1620 requires only 1¾-inches of vertical rack space, and is 19 inches wide by 8 inches deep.

## MODEL 1620 ACOUSTIC FEEDBACK SUPPRESSOR Specifications

<b>Output Level:</b>	+18 dBm (6.16V)
<b>Frequency Response:</b>	±0.5 dB from 20 Hz to 20 kHz
<b>THD:</b>	Less than 0.05% 100 Hz to 20 kHz Less than 0.5% 20 Hz to 100 Hz
<b>Input Level:</b>	+4 dBm nominal
<b>Input Impedance:</b>	15,000 ohms
<b>Load Impedance:</b>	600 ohms
<b>Dimensions:</b>	1¾" (4.45 cm) H 19" (48.26 cm) W 8" (20.3 cm) D
<b>Weight:</b>	5 pounds (2.27 kg)

## Incremental Power® Amplification Systems



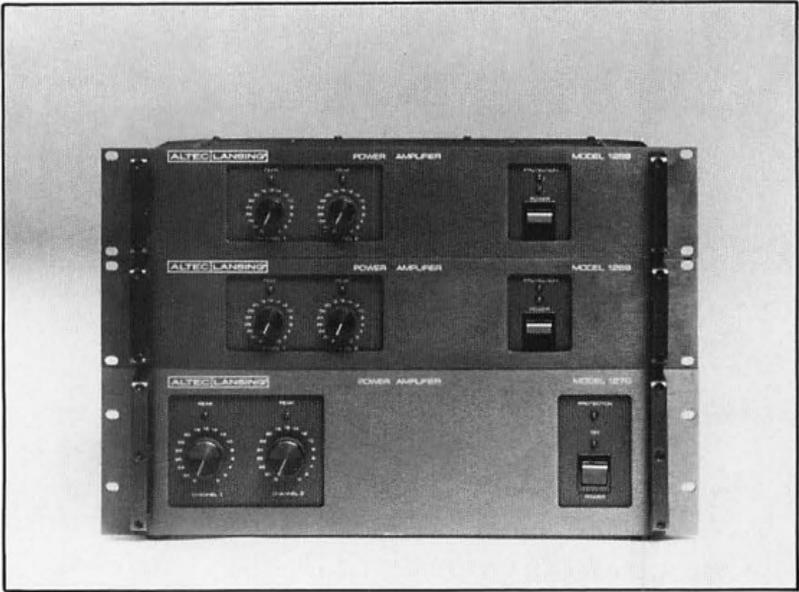
Altec Lansing's patented Model 2200 Incremental Power System is a power amplifier that lets you select components to create your own custom-made power system. Housed in a 7-inch high card-cage mainframe, the Model 2200 accommodates up to eight 75 watt (or four 150 watt) power amplifier cards, one or two electronic crossover cards, a balanced or unbalanced input card and special driver amplifier cards with matrix switching for console-like signal processing.

The power amplifier cards can be combined in 75-watt increments to meet almost any conceivable audio application: independent mode for up to eight separate loads with eight separate sources; parallel mode for high-power, low-impedance loads; bridge mode for balanced 70-volt lines; and, parallel/bridge mode for high-power, balanced 70-volt lines or other high-power loads.

The new Model 2280 Incremental Power System is similar to the Model 2200, but is intended for 70-volt line operation, with provisions for eight 78 watt/70-volt outputs. These can be used independently or in parallel mode to deliver up to 624 watts. Optional balanced or unbalanced inputs with stepped attenuators are available.

**Write for Technical Letter 240A, "Incremental Power: Systems Design and Applications."**

## 1268, 1269 and 1270 Dual Channel Power Amplifiers



The 1268, 1269 and 1270 dual channel, direct-coupled power amplifiers combine advanced computer protection circuitry, major component innovations and new computer design techniques in compact, cost-efficient packages.

Internal circuitry is laid out to make servicing quick and simple. Construction inside and out is state-of-the-art, with features to prove it.

Power configurations include independent, stereo or mono modes. THD, even in the bridge mode with power levels in the 1270 exceeding 800 watts, is less than 0.05% (20-20k).

Equipped with efficient, instantaneous VI limiters, the 1200s restrict output to rated power into loads creating VI phase shifts up to  $\pm 45^\circ$ , for real-world load handling most competing amplifiers just can't duplicate.

### PROFESSIONAL SERIES POWER AMPLIFIERS\*\*

#### Specifications

Model	Number of Channels	Power Output Per Channel at 4 ohms (watts)	Power Output in Bridge Mode at 8 ohms (watts)	Frequency Response	Total Harmonic Distortion	Input Sensitivity
1268	2	100	200	$\pm 0.25$ dB 20 Hz to 20 kHz	Less than 0.05% 20 Hz to 20 kHz	0.77V
1269	2	200	400	$\pm 0.25$ dB 20 Hz to 20 kHz	Less than 0.05% 20 Hz to 20 kHz	0.77V
1270A	2	400	800*	$\pm 0.25$ dB 20 Hz to 20 kHz	Less than 0.05% 20 Hz to 20 kHz	0.77V
2200	1-8	75 to 600W (1 to 32 ohms, 70V)		+0, -0.5 dB 20 Hz to 20 kHz	Less than 0.25% 20 Hz to 15 kHz	0.61V
2280	1-8	78 to 625W (70V)		+0, -1 dB 20 Hz to 20 kHz	Less than 0.15% 20 Hz to 15 kHz	0.77V

\*625 watts at 70V in bridge mode

\*\*Optional 70.7V output transformers available

† with 8 power modules

Extensive computer monitoring for load and amplifier protection includes computerized peak/error comparison of channel input/output signals and disconnect protection from start-up/shut-down transients.

The 1270 also will drive 70-volt distribution systems. Altec makes accessory outboard transformers so that the 1268 and 1269 can be used in this application.

Power Voltage	Input Impedance (ohms)	Signal to Noise Ratio	Height	Dimensions Width	Depth	Weight
100 volts rms	15k	100 dB	3½ in. 8.9 cm	19 in. 48.3 cm	10 in. 25.4 cm	27 lb 12.3 kg
100 volts rms	15k	100 dB	3½ in. 8.9 cm	19 in. 48.3 cm	14¾ in. 37.5 cm	31 lb 14.5 kg
100 volts	15k	100 dB	5¼ in. 13.3 cm	19 in. 48.3 cm	15¼ in. 38.7 cm	52 lb 23.6 kg
100 volts	15k	96 dB	7 in. 17.8 cm	19 in. 48.3 cm	17½ in. 44.8 cm	70 lb† 31.7 kg
100 volts	15k	100 dB	7 in. 17.8 cm	19 in. 48.3 cm	17½ in. 44.8 cm	70 lb† 31.7 kg



1250 NORTH RED GUM STREET, ANAHEIM, CALIFORNIA 92806

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